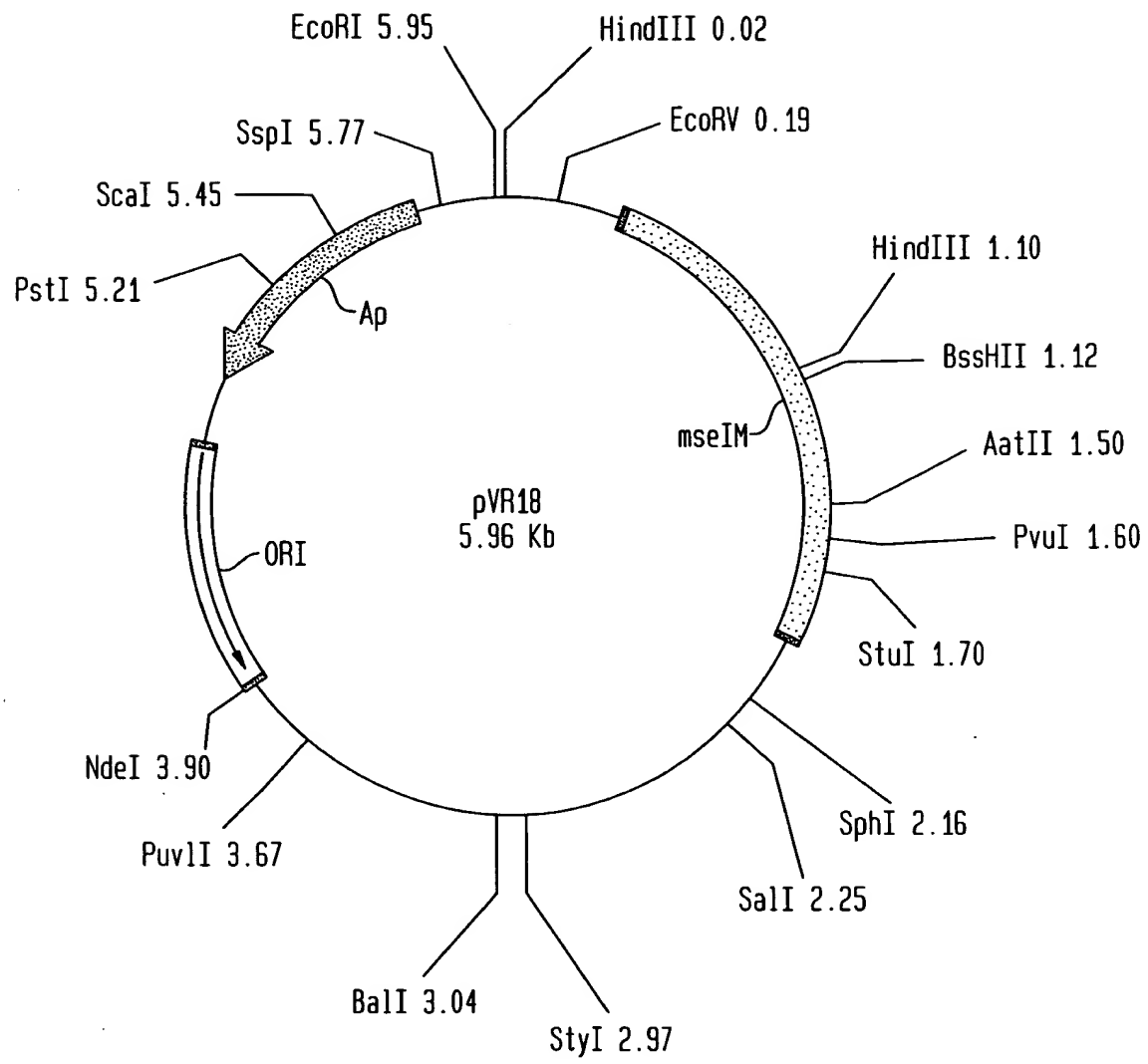




FIG. 1



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FIG. 2A

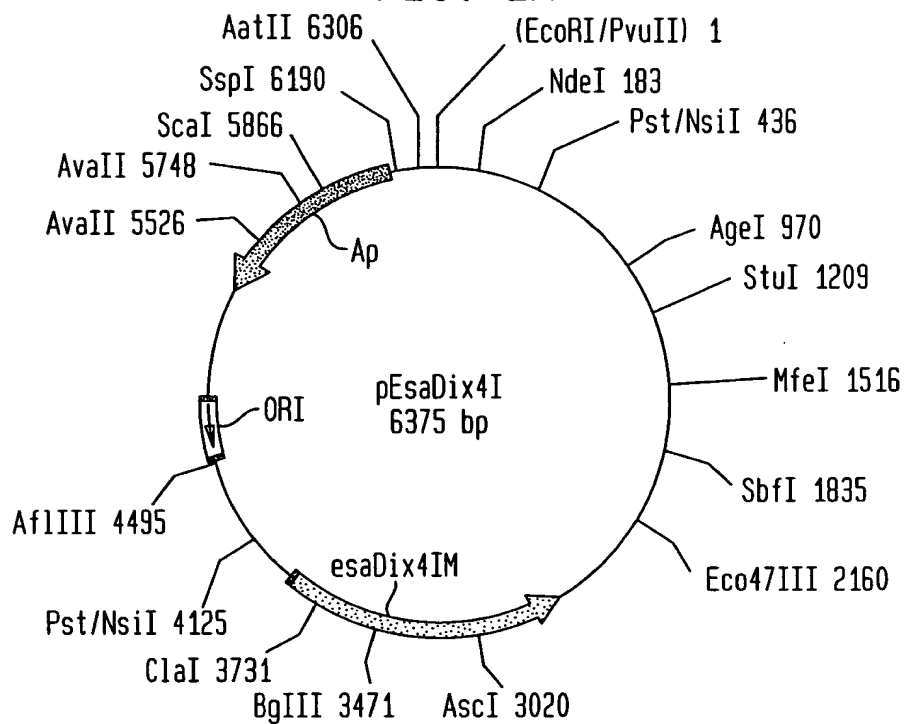
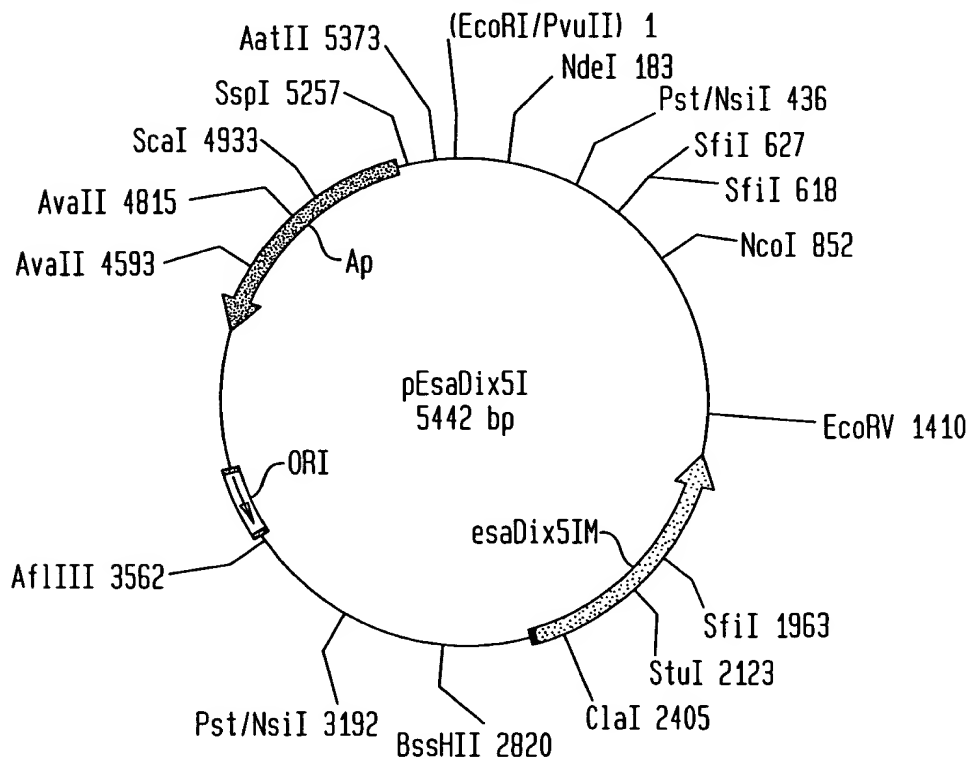


FIG. 3A





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FIG. 2B

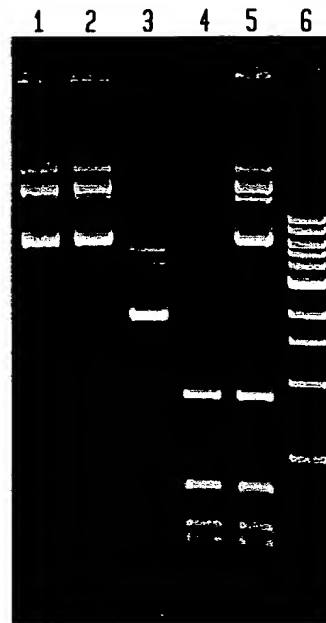


FIG. 3B





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FIG. 4

MleIM

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1 ATGCCTATCTCGACCGTCTGGACGCCGGACGGAGACGACCTCATC SEQ ID NO:1
  M P I S T V W T P D G D D L I SEQ ID NO:2
46 GTGGAGGCGGACAACCTCGATTTTCATTCAAACGCTCCCCGACGCG
  V E A D N L D F I Q T L P D A
91 AGCTTCCGAATGATCTACATCGATCCGCCGTTCAACACAGGGCGA
  S F R M I Y I D P P F N T G R
136 ACGCAGCGGCTTCAGTCGCTCAAGACGACCCGCTCGGTCACAGGG
  T Q R L Q S L K T T R S V T G
181 TCGCGAGTCGGCTTCAAAGGCCAGACGTACGACACGGTCAAGAGC
  S R V G F K G Q T Y D T V K S
226 ACTCTGCACTCGTATGACGACGCTTTCACCGACTATTGGTCGTT
  T L H S Y D D A F T D Y W S F
271 CTCGAACCGCGTCTCCTGGAGGCTTGGCGGTTGCTACCCCTGAC
  L E P R L L E A W R L L T P D
316 GCGCGCTCTATCTTCATCTGGATTACCGCGAGGTTCACTACGCC
  G A L Y L H L D Y R E V H Y A
361 AAGGTCGTCTCGACGCGATGTTCCGACGCGAAAGCTTCTGAAC
  K V V L D A M F G R E S F L N
406 GAGCTGATCTGGGCGTACGACTACGGCGCGCGCTCGAAGAGCAAG
  E L I W A Y D Y G A R S K S K
451 TGGCCCAACCAAGCAGACAACATCCTCGTGTATGTGAAGGACCCG
  W P T K H D N I L V Y V K D P
496 AACAACTACGTCTGGAACGGTCAGGATGTAGATCGCGAGCCCTAC
  N N Y V W N G Q D V D R E P Y
541 ATGGCGCCCGGGCTCGTTACACCCGAGAAGGTAGCGCTTGGCAAG
  M A P G L V T P E K V A L G K
586 CTGCCCACCGACGTCTGGTGGCACACAATCGTTCCGCCTGCGAGC
  L P T D V W W H T I V P P A S
631 AAAGAGCGCACCGGGTACGCGACACAGAAGCCGGTCGGCATCATC
  K E R T G Y A T Q K P V G I I
676 CGTCGCATGATTAGGCGAGCAGCAATGAAGGCGACTGGGTTCTG
  R R M I Q A S S N E G D W V L
721 GATTTCCTTCGCTGGTAGTGGGACGACCGCGCCGCGGCCCGCCAG
  D F F A G S G T T G A A A R Q
766 CTCGGACGCCGTTTTGTGCTCGTAGACGTCAACCCAGAAGCAATC
  L G R R F V L V D V N P E A I
811 GCGGTAATGGCAAAACGGTTGGATGACGGGGCATTGGACACCAGC
  A V M A K R L D D G A L D T S
856 GTGACGATCGTGCAGACTCCCAGAGTGACCCACGAACCGACGGA
  V T I V Q T P Q S D P R T D G
901 TGA 903
```



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FIG. 5

esaDix4IM

SEQ ID NO:3

SEQ ID NO:4

1 ATGCCTACACTGGATTGGCCCGGTAAACAGTTAAGCTTCCCACCA
M P T L D W P G K Q L S F P P
46 GCTACCTCCTTGCATCTGGAGAGTGTGGTCACTGAGGGAGCGGAG
A T S L H L E S V V T E G A E
91 TCACCGCCTAATCGTCTGATTGGGCGGACAACCTGCCGCTAATG
S P P N R L I W A D N L P L M
136 GTAGATTGTTGGCCGAATATGAAGGAAAATCGATCTGATCTAC
V D L L A E Y E G K I D L I Y
181 GCCGATCCCCCTTTTTTACGGATCGTACTTATGCGGCGCGAATT
A D P P F F T D R T Y A A R I
226 GGTCAATGGGGAGGATTCCGCGTCCGTCACAACTGGCAGCTTGCA
G H G E D S R R P Q T W Q L A
271 GAAGGATATACGGACGAGTGAAGGATTAGATGAATACCTGGAC
E G Y T D E W K D L D E Y L D
316 TTCCTTTATCCACGCTGGTACTGATGTATCGACTGCTGGCACCA
F L Y P R L V L M Y R L L A P
361 CACGGAACGCTCTACTTGCACCTGGACTGGCAGCCAATGCCTAC
H G T L Y L H L D W H A N A Y
406 GTACGTGTACTGCTTGATGAGATCTTCGGGCGACAGCGTTTCTC
V R V L L D E I F G R Q R F L
451 AACGAGATCGTCTGGATCTATCACGGCCCTCAGCCATCCGACGC
N E I V W I Y H G P S A I R R
496 GCCTTCAAGCGCAAACATGATACCATCTTGGTTTATGTAAAGGT
A F K R K H D T I L V Y V K G
541 GAAACTATACATTCAATGCGGATGCGGTTCTGCAACCTTACCAT
E N Y T F N A D A V R Q P Y H
586 CCGAGCACNCATAAGACCTTCGCTTCTCCCGAAGGCGGCTTT
P S T H K T F A S S P K A G F
631 GGTAAAGGTGCCGATCTGCAGCGCGCAAAGTGCCGAAGACTGG
G K V P D L Q R G K V P E D W
676 TGGTATTTTCCGGTCGTGGCCGCTACACCGAGAACGGAGCGGC
W Y F P V V A R L H R E R S G
721 TATCCGACTCAAAAGCCTCAAGCCTTGCTGGAGCGGATCCTGCTG
Y P T Q K P Q A L L E R I L L
766 GCCTCCTCGAAGCGAGCGATCTGGTGGCAGACTTCTTCTGCGGC
A S S N A G D L V A D F F C G
811 TCAGGGACAACCGCTGTGGTGGCAGCCGCTCTGGGACGGCGCTTC
S G T T A V V A A R L G R R F
856 CTGGTCAACGATGCAAGCTGGCGCGCGTTCATGTGACACGCACA
L V N D A S W R A V H V T R T
901 CGCTTGCTACGCGAGGAGTAAGTTTCACTTTTGAACGCCAGGAA
R L L R E G V S F T F E R Q E
946 ACTTTTACTCTACCTATCCAGCCACTTCCACCAGATTGGTTGATC
T F T L P I Q P L P P D W L I
991 ATCGCCGAGGAGCAGATTGCGCTCCAAGCACCTTTTCTCGTAGAT
I A E E Q I R L Q A P F L V D
1036 TTTTGGGAAGTGGACGATCAATGGGATGGCAAAATCTTCCGCAGC
F W E V D D Q W D G K I F R S
1081 CGTCATCAAGGCTTACGCTCCCGCTTCAGGAGCAGGCGCGCTC
R H Q G L R S R L Q E Q A P L
1126 TCTCTACCATTGACCGGAATGGACTGTTGTGTGTACGGGTAGTG
S L P L T G N G L L C V R V V
1171 AGCCGTGAAGGGGAATACTATGAGTTCACAGGTCGAGCCGATAGC
S R E G E Y Y E F T G R A D S
1216 CCTCACCCCGTATCGTTTTGA 1236
P H P V S F *



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FIG. 6

1 ATGATCAGAACCTGATGGAAAACGATGTCATTGGCAAAATCTAC
M I T N L M E N D V I G K I Y
46 TTTGCCGACAACATGGAAGTCCTGCGAGGGCTTCCGGCGGCGTCC
F A D N M E V L R G L P A A S
91 GTGGACCTGATCTACATCGATCCTCCGTTCAACACCGGAAAGGTT
V D L I Y I D P P F N T G K V
136 CAGGAGCGCACTCAGCTCAAAACGGTGGCTCCGAGTGGGGCGAT
Q E R T Q L K T V R S E W G D
181 CGCGTCGGATTCCAGGGCCGTCGCTACGAAAGCATCGTCGTGGGT
R V G F Q G R R Y E S I V V G
226 AAGAAGCGCTTTACCGACTTCTTCGACGACTATCTGGCTTTCCTG
K K R F T D F F D D Y L A F L
271 GAACCGCGCCTGGTCAAGCCCATCGTGTCTGGCGCCGACGGG
E P R L V E A H R V L A P H G
316 TGCCTCTACTTTCACGTCGACTACCGCGAGGTGCACTACTGTAAG
C L Y F H V D Y R E V H Y C K
361 GTCCTTCTTGACGGCATCTTCGGTGGCGAGGCCTTTCTCAACGAG
V L L D G I F G R E A F L N E
406 ATCATCTGGGCTACGATTACGGCGGGCGTCCGAAGGACAGGTGG
I I W A Y D Y G G R P K D R W
451 CCTCCTAAGCAGACAACATCCTGCTCTACGCCAAGACTCCCGGT
P P K H D N I L L Y A K T P G
496 CGCCACGTGTTCAATGCGGACGAAATCGAGCGCATTCCCTACATG
R H V F N A D E I E R I P Y M
541 GCTCCGGGCTGGTTGGCCCCGAAAAGGCAGCCCGTGAAAACCTG
A P G L V G P E K A A R G K L
586 CCAACCGACACGTGGTGGCATAACGATCGTTCGACCAGCGGCTCC
P T D T W W H T I V P T S G S
631 GAGAAGACCGGGTATCCAACCCAGAAACCTTTAGGGATTCTCCGC
E K T G Y P T Q K P L G I L R
676 CGTATTGTGAGGCATCGTCTCATCCGGGGGAGTCTGCTCGAC
R I V Q A S S H P G A V V L D
721 TTCTTCGCCGGCAGTGGGACAACAGGGGTAGCGGCTTTTGAGTTG
F F A G S G T T G V A A F E L
766 GGCCGGCGTTTCATTCTGGTCGATAACCATCCGAGGCCCTCCAG
G R R F I L V D N H P E A L Q
811 GTGATGGCCAGGCGCTTCGACGGCATCGAGGGATCGAATGGGTG
V M A R R F D G I E G I E W V
856 GGCTTCGATCCGACACCGTACCAGAAGGGCGCAAAGCAGCGCCGC
G F D P T P Y Q K G A K Q R R
901 TCCTGCCCGGCGCCACCGGGTAA 924
S C P A P T G *

SEQ ID NO:5
SEQ ID NO:6



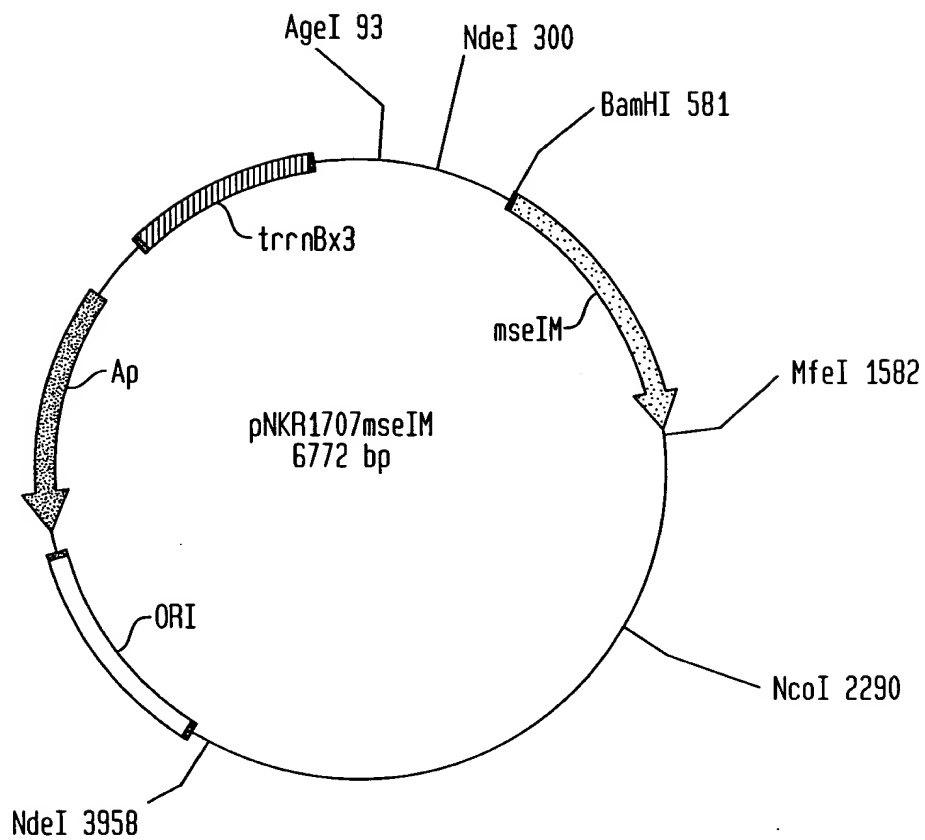
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FIG. 7

mseIR

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1 GTGACCCACGAACCGACGGATGATCCCGATTTCATAGTGATGGCC SEQ ID NO:7
  M T H E P T D D P D F I V M A SEQ ID NO:8
46 GCGAGCGCGGGAACCTCGCTGATCGGTACGTAGCGAGTGAAGAC
  A S A A N L A D R Y V A S E D
91 GACCCCTGGGTGCGGAGCCCGTTCGAGTGGATCCTTCGCGTTCCA
  D P W V G S P F E W I L R V P
136 TCCAGAACGAAGGGCGCGGTGAGTGTCTCGTGAGCGAATGG
  S R T K G A V G E L L V S E W
181 GCTAATGCCAAAGGCCTCCGTGTGAAGAGGTGCGGGTCCAGCGAT
  A N A K G L R V K R S G S S D
226 GCGGACCGCGTGATCAACGGGCATCGCATCGAGATCAAGATGTCG
  A D R V I N G H R I E I K M S
271 ACTTTGTGGAAGTCCGGCGGCTTCAAGTTTCAGCAGATCCGGGAT
  T L W K S G G F K F Q Q I R D
316 CAGGAGTACGACTTTTGCCTCTGCCTTGGGATCAGCCCGTTCGAA
  Q E Y D F C L C L G I S P F E
361 GTGCACGCGTGGCTGCTGCCCAAAGACCTATTGCTTGAGTACGTG
  V H A W L L P K D L L L E Y V
406 ATTGGTCACATGGGTCAGCACACCGGCGGAGCGGGAGCGGACACT
  I G H M G Q H T G A S G S D T
451 GCGTGGCTGGGGTTCCAGCGGACGAGCCGATGACTGGATGCGC
  A W L G F P A D E P Y D W M R
496 CCTTTCGGAGGTCGCTTAGGTCACGTCGAAGATCTCCTCCTCGCG
  P F G G R L G H V E D L L L A
541 GCCGGCCCCGGTCCCTACTGA 561
  A G P G P Y
```

FIG. 8



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FIG. 9A

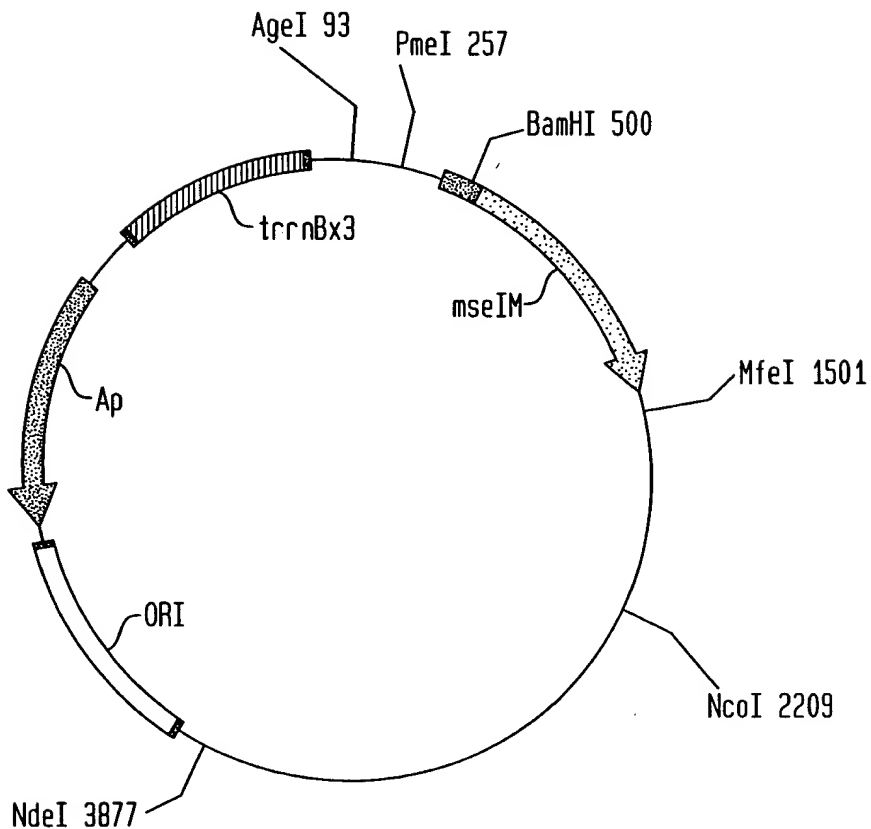


FIG. 9B

SEQ ID NO:9

AgeI

ACCGGTGATTGGACATTGCCGAAATCAGGCTGTCTCTCACTATTTGACGCACTGGCTG
GACTATCCACATCTACCTTATCCCCGAATAACGAGATCCCTTCCAGCACCGGGCAA

PmeI

TTGCCCGGTTTTTTTTGCGTTGAATTTGTCATTTTGTCGCTGGTGTTTAAACCGCAC

-35

-10

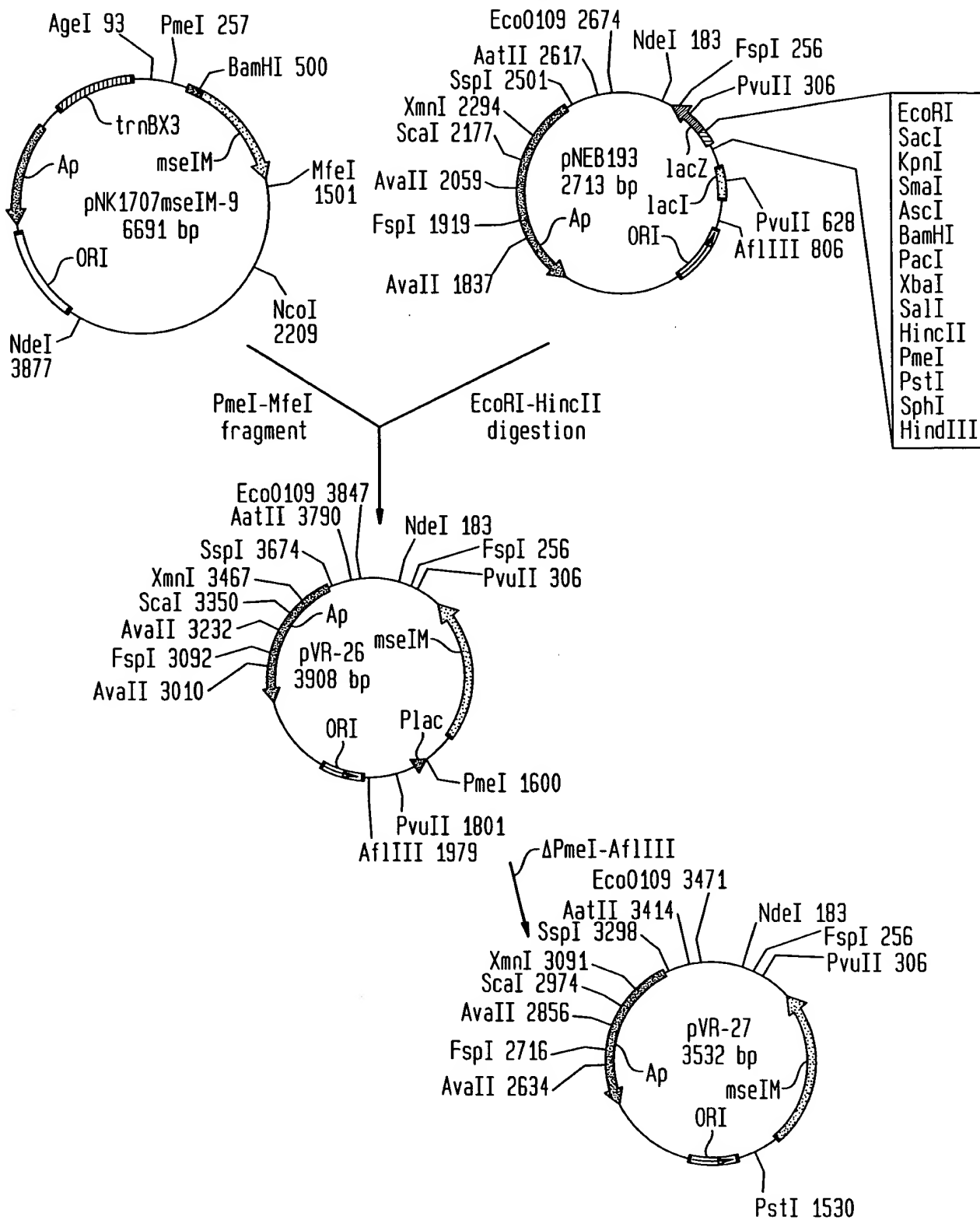
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GTGGAAGGGCTATGTTAGATAAAATTGACCGTAAGCTGCTGGCCTTACTGCAGCAGGA
TTGCACCTCTCTTTGCAGGCACTGGCTGAAGCCGTTAATCTGACAACCACTTGC
TGAAGCGCTGAAACGGCTGGAGGACGACGGTATCCTTATCGGCAAAGTCGCCCTGC

BamHI

TGGATCC

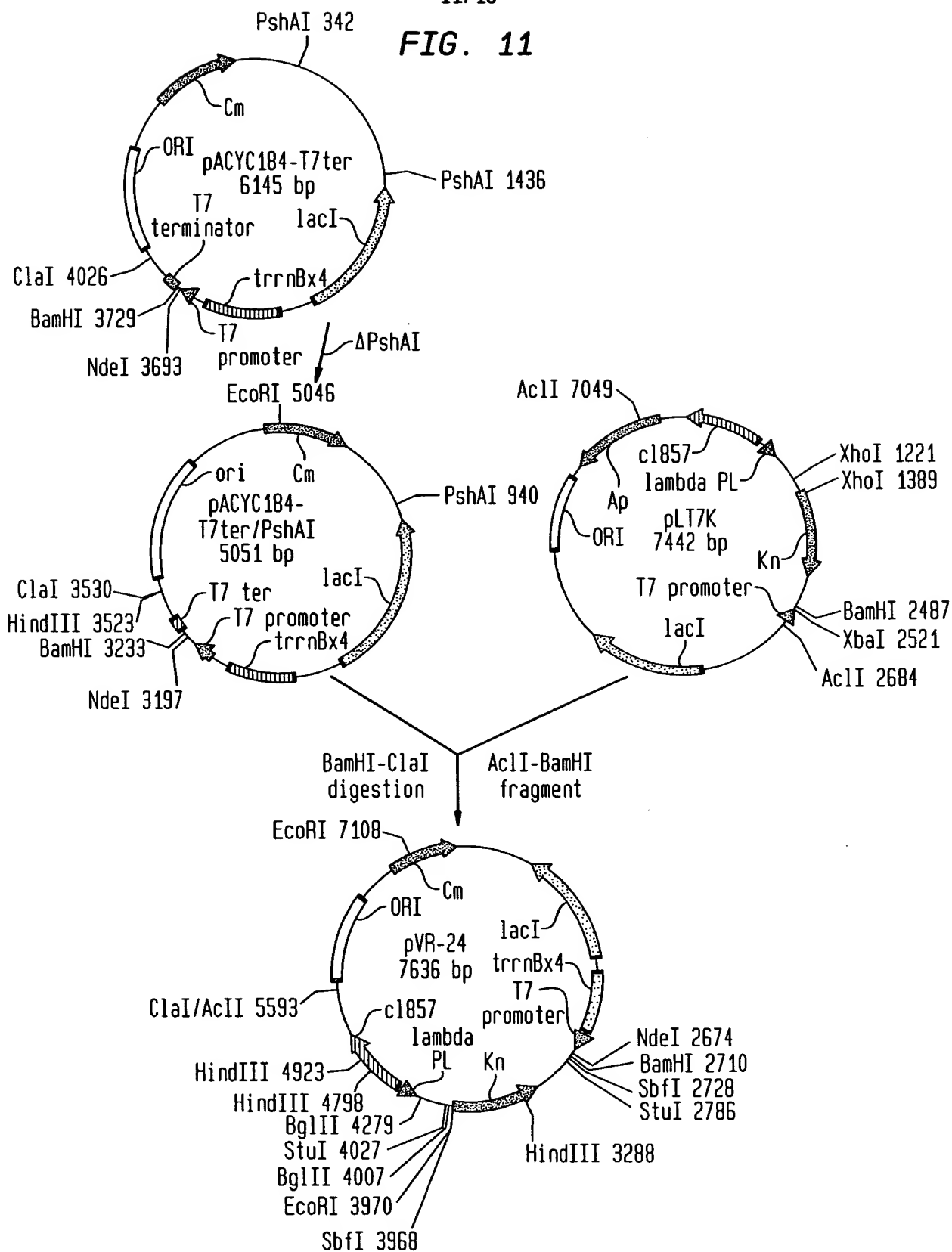
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FIG. 10



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FIG. 11





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FIG. 12A

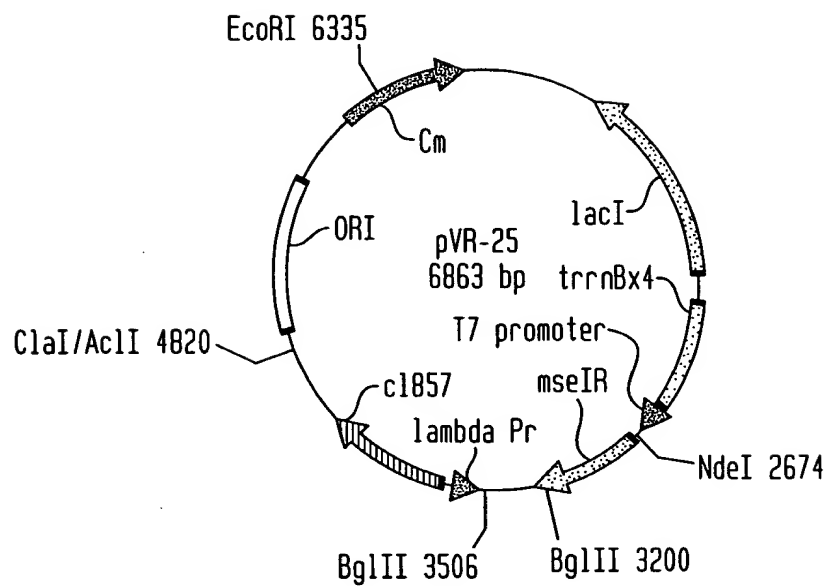


FIG. 13

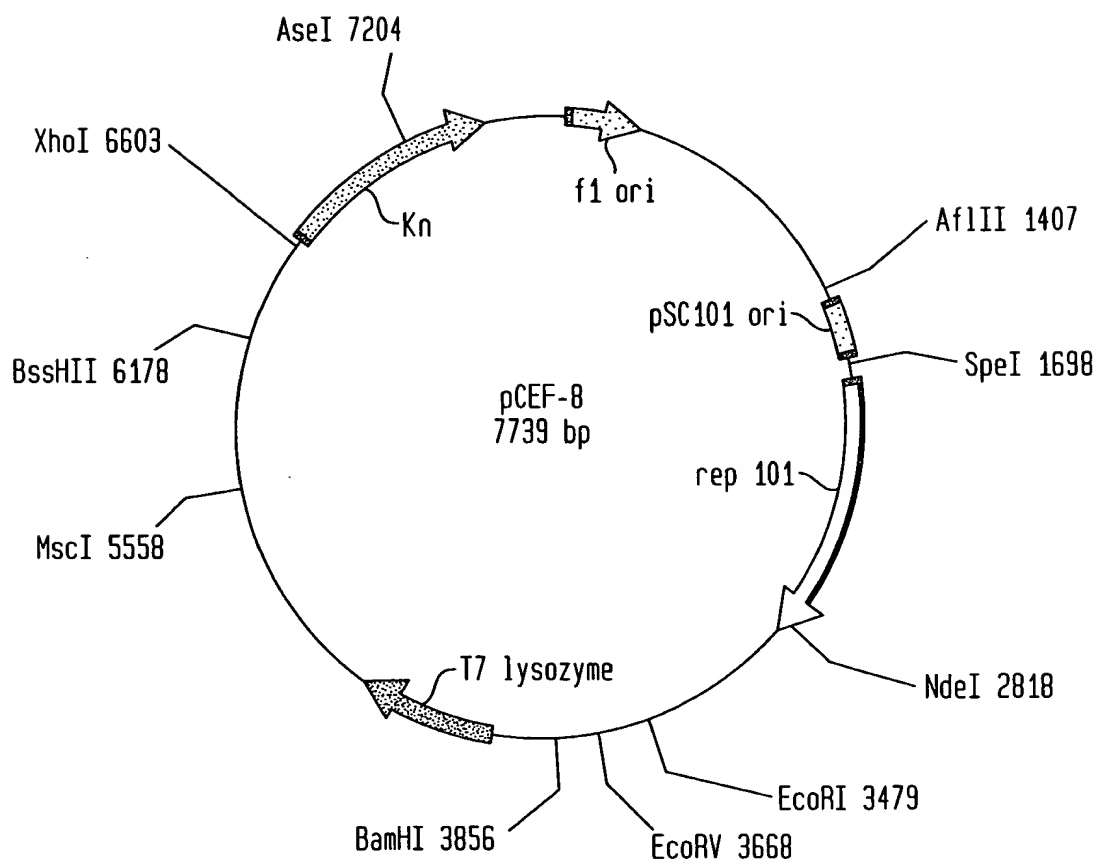
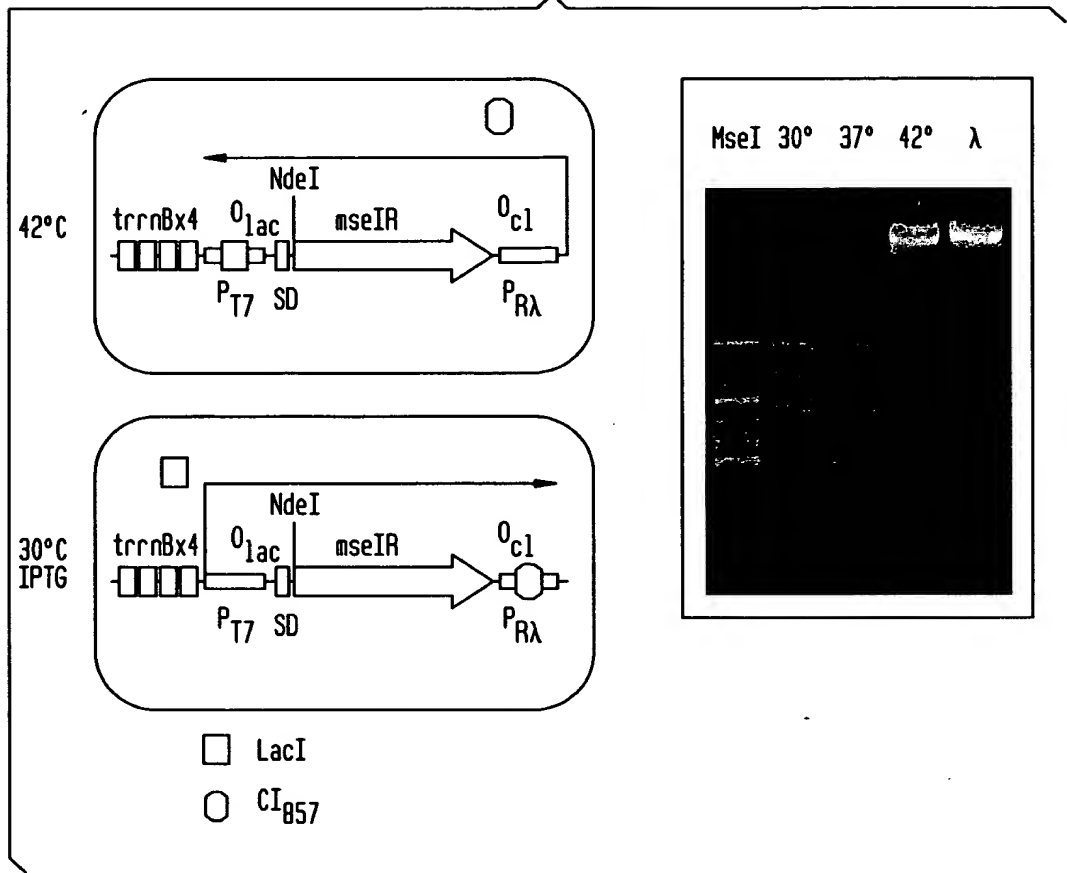


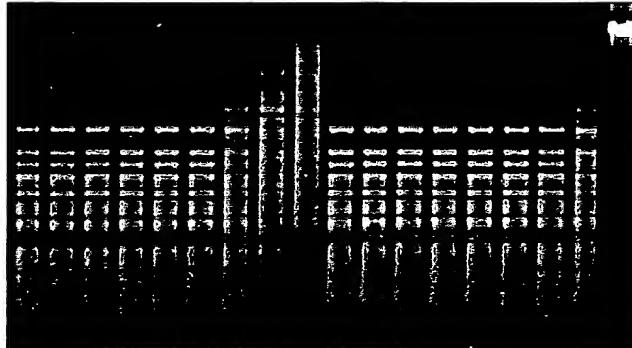
FIG. 12B



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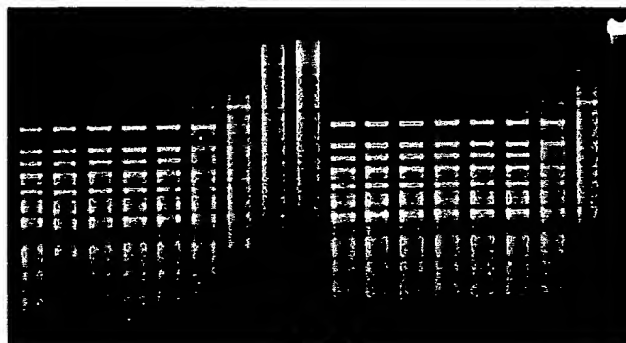
FIG. 14

λ +MseI 4x 16x 64x 256x 4x 16x 64x 256x
| 2x | 8x | 32x | 128x | 2x | 8x | 32x | 128x | λ



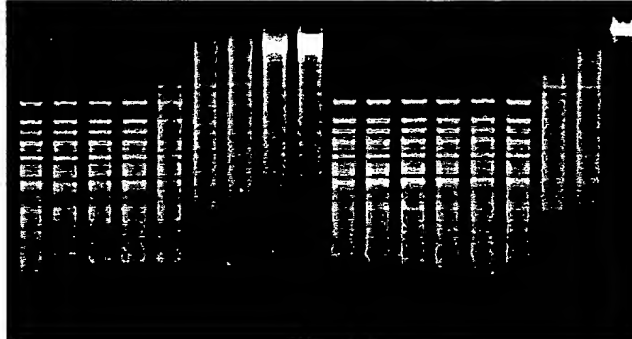
MseRM4

λ +MseI 4x 16x 64x 256x 4x 16x 64x 256x
| 2x | 8x | 32x | 128x | 2x | 8x | 32x | 128x | λ



MseRM5

λ +MseI 4x 16x 64x 256x 4x 16x 64x 256x
| 2x | 8x | 32x | 128x | 2x | 8x | 32x | 128x | λ



MseRM6



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FIG. 15

